World War II Outpost Laboratory Operations

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A major event on this country's road to World War II occurred 70 years ago this month when on Sept. 8, 1939, President Franklin D. Roosevelt declared a limited national emergency.

That increased the enlisted strengths of all armed forces and authorized retired officers, men and nurses to be recalled to active duty to the Navy and Marine Corps.

It would be a major turning point for the Signal Corps that would give way to unprecedented growth and expansion.

There are numerous accounts of Signal Corps activities located in Monmouth County, N.J. that was known as the "Fort Monmouth Sector." Lesser-known is the fact that numerous training, laboratory and support facilities were located outside Monmouth County.

Outpost locations placed Signal scientists in areas where they were needed. For example, scientists involved with vehicular radios would be located near vehicle manufacturers.

Bethlehem Field Office

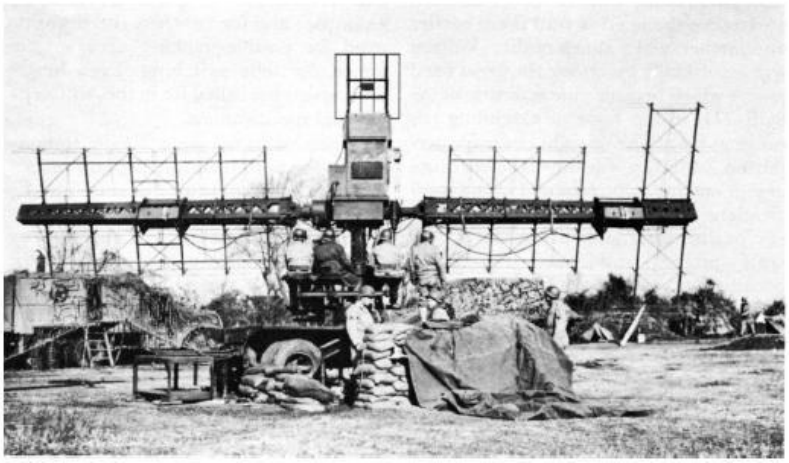
The General Development Laboratory activated the "Bethlehem Field Office" in August 1942 in Bethlehem, Pa.

It operated until August 1943. It was located at the Holland Furnace Company, in "Plant No. 3." "Plant No. 3" included three buildings with about 120,000 square feet of space. Railroad sidings for the Lehigh and New England Railroad ran inside the main building.

By the time the office was operational it would be renamed the "Bethlehem Field Section," and became part of the Toms River Signal Laboratory of Toms River. There were two major activities at Bethlehem, Project S-58 and raw quartz inspection.

Project S-58 involved the design and construction of Radio Sets SCR-696 and SCR 698. The SCR-698 was a mobile broadcast transmission system used for propaganda purposes. The SCR-696 was the intercept unit for the SCR-698. This project employed approximately 50 people.

Formerly managed by the U.S. Bureau of Standards, the quartz examination project included two activities.



The SCR-268 radar set in Neetuno, Italy during World War II

First was the examination of a backlog of raw quartz. The second activity included re-examination of a large quantity of quartz rejected by bureau inspectors. The project involved 119 people learning to inspect quartz included a three-week training program.

The program's primary purpose was to identify usable quartz crystals. Thin sections of quartz were a major component of oscillators. Oscillators controlled mechanical vibration and controlled the frequency of radio transmissions.

Quartz, vital to the war effort, was in short supply. The majority of the quartz at the time came from Brazil.

Other quartz-related projects took place. Bethlehem and scientists at Lehigh University in Bethlehem also carried out experiments on smoky quartz. Workers also took field trips to nearby areas in search of suitable quartz.

In addition to those two major projects, this station was also involved in other special radio communication projects.

One of those programs included sound ranging experiments. Another included observation flights of meteorological balloons. Bethlehem was also involved with radio-relay communication systems using Radio Set AN/TRC-1.

Florida Field Station

The Florida Field Station was activated in March 1943. It was located in Clermont, Fla., on leased property. It consisted of one permanent building and a series of metal buildings.

The metal buildings came from the Signal Corps Area at Fort Hancock, N.J. Initially, temporary facilities were also located in various buildings in Clermont.

Clermont was also the headquarters of the Army Air Force. The station fulfilled two main purposes. First, it provided members of the Army Air Force with quick introductions to new signal equipment. Second, it introduced equipment modifications and improvement kits.

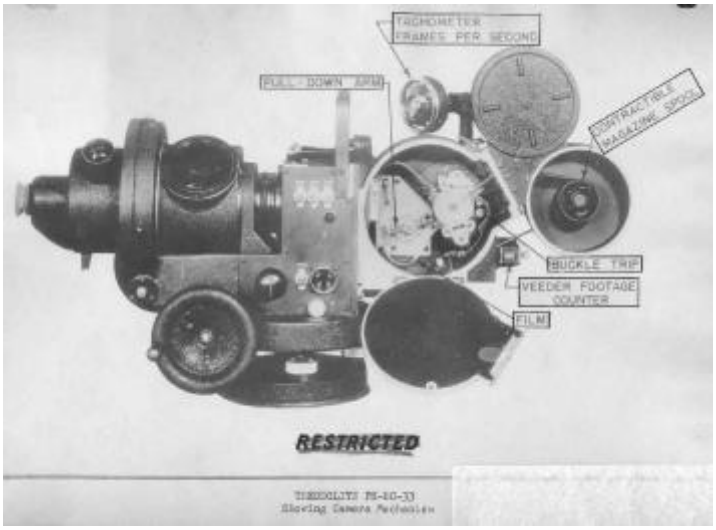
The Florida Field Station, when started, relied upon the administrative capabilities at Fort Monmouth. As the station grew, hiring focused on people from nearby communities.

Deactivation came in 1945 and the Army turned the facility over to the Air Corps.

Detroit Field Office

The Detroit Field Office was activated in February 1942. It performed liaison activities "with the Ordnance Department and vehicle manufacturers." It also made available civilian radio technicians to manufacturing sites in Detroit. Deactivation came in 1945.

The installation was responsible for the design and development of radios in vehicles. It also handled preparations for radio installations, drawings, parts lists, suppression systems and generators.



World War II Theodolite Showing Camera

Initially, the office relied upon Fort Monmouth for administrative services. That caused a burden on Fort Monmouth that included staff travel between locations. Eventually, local people filled the administrative positions.

By the fall of 1942, there were nearly 1,000 people employed at this location. In 1943, employment leveled off, and began to drop. Decreases came due to program realignments. Realignments included transfer of the "Field Installation" mission from Detroit to Philadelphia. Employment levels dropped to about 500.

The Detroit Field Laboratory included a number of leased buildings. Those included the Curtis Building, Harpers Garage, Weil Building, Goodrich Garage, Brown Barn, and the Walker Barn. The Weil Building was the Administration Building.

Goodrich Garage included a parking area. As noted in an era document, "Vehicles were acquired and drivers employed to provide transportation between buildings and to manufacturer's plants."

Other activities also took place at the installation. One example was developing a standardized method for suppression testing. Scientists in Detroit also developed inspection methods for filters, capacitors, and other components. They also designed and tested trailers, van bodies and shelters.

The Detroit facility also assumed responsibility for the Radio Noise Elimination Subsection. That group was located at Fort Monmouth.

There were no ready-made “noise meters” available. So, Radio Noise Elimination Subsection engineers redesigned existing equipment to use as noise meters. A World War II report attests to the value of work by this subsection.

The report states “the finest radio equipment obtainable is valueless if the interference level from the ignition system and other components of the vehicle is so high as to make reception unintelligible, or if the equipment is not installed in such a manner that it will operate properly.”

Dugway Field Section

The Dugway Field Section was located at the Dugway Proving Grounds, in Utah. Operations began there in April 1942.

The field station had one purpose; to carry out “Project 743A.” That project involved determining weather effects on droplets of chemical agent released from high altitudes.

As organized, the Proving Grounds’ commanding general was responsible for coordination of the project.

Project 743A partners included the Air Corps, the Chemical Warfare Service, and the Signal Corps. The Signal Corps was responsible for developing techniques used to determine wind effects.

Another responsibility of Signal scientists included determining other “pertinent meteorological factors above distant target areas.”

An example of their work included determining the distance a droplet of a chemical agent would “miss the center of a target when sprayed from 20,000 feet.”

Preliminary work with Project 743A took place at the Eatontown Signal Laboratory. Early work at Eatontown included meetings and conferences.

Preliminary testing for Project 743A took place at Edgewood Arsenal, Md. in February 1942. The work involved developing a technique to track a plane in flight with standard balloon “theodolites.”

A theodolite measures horizontal and vertical angles used to determine locations. The test at Edgewood was unsuccessful and the theodolite was returned to Fort Monmouth for modification.

To support this project, the Eatontown Signal Laboratory constructed a complete mobile weather unit.

Signal Corps personnel were also present at Dugway for the installation of a weather teletype. They also installed radio station WVCH for communications during the project.

The project was completed in 1943. Upon project completion, Signal Corps personnel trained chemical warfare personnel to operate the equipment. They then turned the project over to the Chemical Warfare Service.

The widespread expansion of the Signal Laboratories headquartered at Fort Monmouth during World War II was not confined to Monmouth County.

Even 70 years ago there was a sense of "life-cycle" management that drove the laboratory administrators and our predecessors in the workforce to expand their operations well beyond the confines of New Jersey.